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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PERVAN, MICHAEL	
ART UNIT	**PAPER NUMBER**
2629	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/784,761	MIYAMOTO, ISSHIN	
	Examiner	Art Unit	
	Michael Pervan	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/21/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 6 and 12 are objected to because of the following informalities: the claims should end in a period instead of a colon. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 5-6, 10 and 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Kfoury et al (US 2003/0044000).

In regards to claim 1, Kfoury discloses a fingertip tactile sense input device comprising:

an input plate with a plurality of projections (Fig. 7; input plate (keypad membrane 608)), each projection having a front end for receiving pressure contact by a human fingertip, and each projection having a back end (Fig. 7 and paragraph 25; as can be seen from the drawing the projections have a top surface. Also, there is a bottom surface which contacts the dome sheet array 662);

the projections arranged in a surface area with a generally egg-shaped outline defined by the range of motion on a surface by a human fingertip with the wrist fixed,

and that is equally usable with a right or left hand (Fig. 6; as can be seen from the drawing the projections are arranged with an egg shaped outline defined by the range of motion on a surface by a human fingertip and can be used equally with either the left or right hand); and

input control means (processor 500) that encodes a given input signal when a respective one of the projections is pressed by a moving fingertip (paragraph 21).

In regards to claim 2, Kfoury discloses the fingertip tactile sense input device of claim 1, wherein at least twelve projections are provided within the egg-shaped outline, corresponding to digits 0-9 and characters "*"and "#" (Fig. 6; as can be seen from the drawing the projections have an egg shaped outline and correspond to digits 0-9 and characters "*" and "#").

In regards to claim 5, Kfoury discloses the fingertip tactile sense input device of claim 1, further comprising:

an electrical input circuit (dome sheet array 662) on the back of each projection (Figs. 8-9 and paragraph 23);

a pressure sensitive variable resistor in each input circuit behind the respective projection (Figs. 8-9 and paragraph 23; the input circuit (dome sheet array 662) could utilize resistive sensors);

a selection circuit electrically (keypad 502/611) connected to the input circuits that identifies which one of the projections is being pressed the hardest (paragraph 23; when a projection (key) is pressed it contacts the input circuit (dome sheet array 662) and operates a key sensor 636); and

the input control means (processor 500) is electrically connected to the selection circuit, and encodes a unique electronic representation of each projection identified by the selection circuit (Fig. 5 and paragraph 21).

In regards to claim 6, Kfoury discloses the fingertip tactile sense input device of claim 5, wherein the input plate is flexible (paragraph 23; input plate (dome sheet array 662) can be made of mylar bubble membrane), and the projections are integrally molded with the input plate (Figs. 8-9; as can be seen from the drawing the projections and input plate are molded so that the pieces fit together, therefore they are integrally molded).

In regards to claim 10, Kfoury discloses a tactile sense input device comprising:

an array of projections protruding from a surface (Fig. 7), each projection having a rounded front end for receiving pressure contact from a moving human fingertip (Figs. 7-9), and each projection having a known spatial position relative to the other projections in the array (Fig. 7 and paragraph 25; since the projections (keys) correspond to the input circuit (dome sheet array) the spatial position must be known);

the projections arranged in an area defined by the range of motion on a surface by a human fingertip with the wrist fixed and equally usable with a right or left hand;

an electrical input circuit behind each respective projection (Figs. 8-9 and paragraph 23);

variable resistance means for producing an electric current in each input circuit in proportion to pressure by a human fingertip on the respective projection (paragraph 23);

a selection circuit that compares electrical current strengths among the input circuits, and identifies the input circuit with the strongest current (paragraph 23; when a projection (key) is pressed it contacts the input circuit (dome sheet array 662) and operates a key sensor 636);

an input controller, electrically connected to the selection circuit, that encodes a digital representation for each input circuit identified by the selection circuit (Fig. 5 and paragraph 21).

In regards to claim 12, the fingertip tactile sense input device of claim 10, wherein the input plate is flexible (paragraph 23; input plate (dome sheet array 662) can be made of mylar bubble membrane), and the projections are integrally molded with the input plate (Figs. 8-9; as can be seen from the drawing the projections and input plate are molded so that the pieces fit together, therefore they are integrally molded).

In regards to claim 13, the tactile sense input device of claim 10, further comprising a navigation key centered above the projections and a left and right function key (Fig. 1; as can be seen from the drawing there is a navigation key centered above the projections and a left and right function key (106)).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3-4, 7-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kfoury et al.

In regards to claim 3, Kfoury does not disclose the fingertip tactile sense input device of claim 2, wherein the at least twelve projections are arrayed in rows and columns, with lateral spacing of the columns in a range of 4.5 mm to 8.0 mm, and vertical spacing of the rows in the range of 4.0 mm to 7.0 mm.

However, Kfoury does disclose having dimensions (Fig. 6; as can be seen in the drawing the projections are arranged in rows and columns and have a particular spacing).

Since, there is no advantage or benefit to having the range in size as claimed, therefore it would have been obvious to one of ordinary skill in the art to choose a size based on a designer's choice.

In regards to claim 4, Kfoury does not disclose the fingertip tactile sense input device of claim 1, wherein the egg-shaped outline has a height of 24 mm to 28 mm and a width of 22 mm to 28 mm.

However, Kfoury does disclose having dimensions (Fig. 6; as can be seen in the drawing the projections are arranged in rows and columns and have a particular spacing).

Since, there is no advantage or benefit to having the range in size as claimed, therefore it would have been obvious to one of ordinary skill in the art to choose a size based on a designer's choice.

In regards to claim 7, Kfoury does not disclose the fingertip tactile sense input device of claim 5, wherein a given one of the projections is smaller than the other projections to indicate a home position to the tactile sense.

However, it is well known in the art to indicate the home position or row of projections (keys).

In regards to claim 8, Kfoury discloses the fingertip tactile sense input device of claim 7, further comprising a menu navigation key centered above the projections and two additional function keys equidistant on the left and right from the home position (Fig. 1; as can be seen from the drawing there is a navigation key centered above the projections and a left and right function key (106)).

In regards to claim 11, Kfoury does not disclose the tactile sense input device of claim 10, wherein the array of projections limited to an area with a lateral dimension of about 28 mm and a vertical dimension of about 30 mm.

However, Kfoury does disclose having dimensions (Fig. 6; as can be seen in the drawing the projections are arranged in rows and columns and have a particular spacing).

Since, there is no advantage or benefit to having the range in size as claimed, therefore it would have been obvious to one of ordinary skill in the art to choose a size based on a designer's choice.

6. Claims 9 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kfoury et al (US 2003/0044000) in view of Liebenow et al (US 6,909,424).

In regards to claim 9, Kfoury discloses the fingertip tactile sense input device of claim 5, further comprising:

a handheld portable electronic device with a front surface and a back surface (Figs.1-4, 6);

a display screen on the front surface of the portable handheld electronic device (Figs. 1-4, 6);

a control section in the handheld portable electronic device that is electrically connected to the input control means and to the display screen (Fig. 5; the control section (display drivers) are connected to the input section (keypad) via processor 500);

the control section causing the screen to display a visual representation of each projection when it is identified by the selection circuit (paragraph 21; processor 500 uses control section (display drivers 508) to display a visual representation of each projection).

Kfoury does not disclose the input plate mounted in the back surface of the portable handheld electronic device and the visual representation of the identified projection being displayed in a position on the screen corresponding to the location of the identified projection relative to the other projections.

Liebenow discloses the input plate mounted in the back surface of the portable handheld electronic device (Fig. 8 and col. 8, lines 23-28).

It would have been obvious at the time of invention to modify Kfoury with the teachings of Liebenow, keypad on the back surface, by incorporating the teachings of

Liebenow into the device of Kfoury because it allows the user to operate the input circuit with their fingers while holding the device and having the display in view as well.

Kfoury and Liebenow do not disclose the visual representation of the identified projection being displayed in a position on the screen corresponding to the location of the identified projection relative to the other projections.

However, Liebenow discloses the visual representation of the projections being displayed in the order that they are identified (Figs. 15-16).

Since, there is no advantage or benefit to having the visual representation of the identified projection being displayed in a position on the screen corresponding to the location of the identified projection relative to the other projections instead of the order they are identified, therefore it would have been obvious to one of ordinary skill in the art to choose either displaying the projections in the order they are identified or a position on the screen corresponding to the location of the identified projection relative to the other projections based on a designer's choice.

In regards to claim 14, Kfoury discloses the tactile sense input device of claim 10, further comprising:

a personal digital assistant having an outer case with front and back surfaces (Figs. 1-4, 6);

a display screen on the front surface of the outer case (Figs. 1-4, 6; display 104);

an input/output control section (processor) electrically connected to the input controller and to the display screen that causes the screen to display a visual representation of each unique digital representation when it is encoded by the input

controller (paragraph 21; input/output control section (processor 500) is connected to input controller (keypad) and display screen via display drivers and causes the display screen to display a visual representation via the display drivers).

Kfoury does not disclose the plurality of projections being mounted on the back surface of the outer case and each unique visual representation displayed in a position on the screen corresponding to the spatial position of the respective projection that caused it.

Liebenow disclose the plurality of projections being mounted on the back surface of the outer case (Fig. 8 and col. 8, lines 23-28).

It would have been obvious at the time of invention to modify Kfoury with the teachings of Liebenow, keypad on the back surface, by incorporating the teachings of Liebenow into the device of Kfoury because it allows the user to operate the input circuit with their fingers while holding the device and having the display in view as well.

Kfoury and Liebenow do not disclose each unique visual representation displayed in a position on the screen corresponding to the spatial position of the respective projection that caused it.

However, Liebenow discloses the visual representation of the projections being displayed in the order that they are identified (Figs. 15-16).

Since, there is no advantage or benefit to having each unique visual representation displayed in a position on the screen corresponding to the spatial position of the respective projection that caused it instead of the order they are identified, therefore it would have been obvious to one of ordinary skill in the art to

choose either displaying the projections in the order they are identified or a position on the screen corresponding to the spatial position of the respective projection that caused it based on a designer's choice.

In regards to claim 15, Kfoury does not disclose the tactile sense input device of claim 14, wherein the projections protrude through individual holes in the back surface of the outer case of the personal digital assistant.

Liebenow discloses the tactile sense input device of claim 14, wherein the projections protrude through individual holes in the back surface of the outer case of the personal digital assistant (Fig. 8; as can be seen from the drawing the input device (230) has multiple keys which each have their own hole to protrude from).

In regards to claim 16, Kfoury and Liebenow do not disclose the tactile sense input device of claim 14, wherein a home position for a fingertip is indicated by a surface feature on the back surface of the outer case of the personal digital assistance.

However, it is well known in the art to indicate the home position or row of projections (keys).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art (Brandenberg et al US 6,665,173) is deemed relevant since it discusses having keys in a back surface.

Prior art (Ikesue et al JP 10-333778 A) is deemed relevant since it discusses having keys on a back surface.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pervan whose telephone number is (571) 272-0910. The examiner can normally be reached on Monday - Friday between 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MVP
Dec. 18, 2006

AMR A. AWAD
SUPERVISORY PATENT EXAMINER